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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/787,089

02/27/2004

Masaaki Kojima

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07/30/2008

OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

MERKLING, MATTHEW J

ART UNIT

PAPER NUMBER

1795

NOTIFICATION DATE

DELIVERY MODE

07/30/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No. 10/787,089	Applicant(s) KOJIMA, MASAOKI	
	Examiner MATTHEW J. MERKLING	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-9,11,12,14-18 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-9,11,12,14-18 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/21/08,3/21/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The examiner considered the US application (10/504,987) but lined through it as it is not a published document available to the public and will not be listed on the face of the patent if one is to be issued.

Terminal Disclaimer

2. The terminal disclaimer filed on 5/1/08 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US 6,770,116 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Comment [a1]: The paper from a paralegal saying the TD is OK isn't in the case file. I sent a message in eDan, so you should hear back on this in 24-48 hours (from 7/15/08 at 6:00pm). Once you get that, then we can move this on for counting.

Claim Rejections - 35 USC § 102

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claim 21 is rejected under 35 U.S.C. 102(e) as being anticipated by Kumagai (US 6,090,187).

Regarding claim 21, Kumagai discloses an exhaust gas purification apparatus (see abstract) comprising: a casing (4a, 4b); a honeycomb-like filter (5a, 5b, col. 4 lines 6-10) accommodated in the casing and the honeycomb-like filter being configured to remove particulates in an exhaust gas (filter, see abstract);

a regeneration device (Fig. 1) configured to cause the honeycomb-like filter to be preheated with heat of the exhaust gas before regenerating the honeycomb-like filter (seeing that the exhaust gas is passed through the filter prior to being regenerated, the exhaust gas inherently preheats the honeycomb filter, see col. 6 lines 17-47);

a heating means (7a, 7b),

a switch valve (6a, 6b) positioned adjacent to the casing and configured to switch a flow of the exhaust gas (see Fig. 1),

wherein the regeneration device comprises a first temperature detector and pressure detector (17 and 18 respectively) configured to detect a temperature and pressure in/downstream of the casing (see temperature sensor 17 and pressure sensor 18 downstream of filter 5a in Fig. 1), a second temperature detector and second pressure detector configured to detect a temperature and pressure of the exhaust gas (see temperature sensor 17 and pressure sensor 18 upstream of filter 5a in Fig. 1), and a processor (ECU, 10) configured to make a comparison of the temperature in the casing with the temperature of the exhaust gas, open the switch valve based on the comparison and preheat the

honeycomb-like filter with the exhaust gas (see col. 5 lines 18-33 where Kumagai discloses a "filter accumulation amount detection function" which compares the pressure and temperature upstream of the filter (exhaust pressure/temperature) and the pressure and temperature downstream of the filter (casing temperature/pressure) and subsequently opens a switch valve (8) to initiate the filter regeneration).

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 1, 7-9, 11, 12, 16-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumagai (US 6,090,187) in view of Ono et al. (JP 11-236813 A1).

Regarding claims 1, 9, 11, 12, 18 and 20, Kumagai discloses an exhaust gas purification apparatus (see abstract) comprising: a casing (first and second casings, 4a, 4b); a honeycomb-like filter (5a, 5b, col. 4 lines 6-10) accommodated in the casing and the honeycomb-like filter being configured to remove particulates in an exhaust gas (filter, see abstract);

a regeneration device (Fig. 1) configured to cause the honeycomb-like filter to be preheated with heat of the exhaust gas before regenerating the honeycomb-like filter (seeing that the exhaust gas is passed through the filter prior to being regenerated, the exhaust gas inherently preheats the honeycomb filter, see col. 6 lines 17-47); and

a switch valve (6a, 6b) positioned adjacent to the casing and configured to switch a flow of the exhaust gas (see Fig. 1),

wherein the regeneration device comprises a first temperature detector and pressure detector (17 and 18 respectively) configured to detect a temperature and pressure in/downstream of the casing (see temperature sensor 17 and pressure sensor 18 downstream of filter 5a in Fig. 1), a second temperature detector and second pressure detector configured to detect a temperature and pressure of the exhaust gas (see temperature sensor 17 and pressure sensor 18 upstream of filter 5a in Fig. 1), and a

processor (ECU, 10) configured to make a comparison of the temperature in the casing with the temperature of the exhaust gas, open the switch valve based on the comparison and preheat the honeycomb-like filter with the exhaust gas (see col. 5 lines 18-33 where Kumagai discloses a "filter accumulation amount detection function" which compares the pressure and temperature upstream of the filter (exhaust pressure/temperature) and the pressure and temperature downstream of the filter (casing temperature/pressure) and subsequently opens a switch valve (8) to initiate the filter regeneration).

While Kumagai discloses a filter for high temperature operation and a filter to burn soot, Kumagai fails to teach the porous filter made from sintered silicon carbide and containing an exhaust gas purification catalyst.

Ono also discloses an exhaust gas purification system and teaches a sintered silicon carbide filter comprising a exhaust gas purification catalyst, in order to provide a preferential filter than can withstand the high temperature requirements of the regeneration cycle and facilitate the burning of collected soot ([0012]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the sintered silicon carbide filter with exhaust purification catalyst, as taught by Ono, in the exhaust gas purification system of Kumagai in order to provide a filter than can preferentially withstand the high temperature requirements of the regeneration cycle and facilitate the burning of collected soot.

Furthermore, Kumagai teaches a switching valve that is positioned upstream of the filter instead of downstream of the filter. However, changing the location of the switching valve would not modify the operation of the regeneration system. Positioning the switch

valve upstream of the filter effectively controls the flow of gas through the filter, similar to positioning the location of the switch valve downstream of the filter. As such, such modification is a mere rearrangement of the system parts that would not modify the operation of the system, and would have been obvious to one of ordinary skill in the art at the time of the invention. See *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950).

Regarding claims 7, 8, 16 and 17, Kumagai further discloses a heating means (electric heater, 7a, 7b) configured to heat the honeycomb (see Fig. 1).

7. Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumagai (US 6,090,187) and Ono et al. (JP 11-236813 A1) as applied to claims 1 and 12 above, and further in view of Sasaki et al. (US 5,732,554).

Regarding claims 5 and 14, while Kumagai discloses the use of a switching valve (9) in the exhaust purification system, Kumagai is silent as the exact type of valve that is employed in this service.

Sasaki also discloses an exhaust gas purification device that utilizes a switching valve. Sasaki teaches an electromagnetic valve (51) that is preferentially utilized in a switching valve service (col. 4 lines 53-61).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize an electromagnetic valve (as in Sasaki) in the exhaust gas purification system of modified Kumagai as a preferential valve to use in switching valve service.

8. Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumagai (US 6,090,187) in view of Ono et al. (JP 11-236813 A1) as applied to claims 1 and 12 above, and further in view of Kuwamoto et al. (US 5,853,459).

Regarding claims 6 and 15, Kumagai, as discussed in claims 1 and 12 above, further discloses a processor (10) comprising a CPU, a RAM, and a ROM (see Fig. 1, ECU), however, Kumagai is silent on the temperature detectors (first and second) comprising a thermocouple in the high temperature environment of regenerating filters.

Kuwamoto also discloses an exhaust purification system that utilizes temperature sensors. Kuwamoto teaches thermocouples as a preferential way of obtaining temperature readings in a high temperature environment (col. 61 lines 42-48).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize thermocouples, as in Kuwamoto, in the exhaust gas purification system of modified Kumagai as a preferential means for obtaining temperature readings in high temperature service.

Response to Arguments

9. Applicant's arguments filed 5/1/08 have been fully considered but they are not persuasive.

On pages 3 and 4, Applicant argues that Kumagai fails to teach a comparison of the temperature in the casing with a temperature of the exhaust gas and operating the switching means based on the comparison. The examiner respectfully disagrees with this argument. Kumagai specifically states that "...the accumulation amount of the No. 1 filter 5a is detected

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from calculation of an exhaust gas flow amount and detection of a pressure loss (or differential pressure) between the inlet and outlet sides of the No. 1 filter 5a, with use of exhaust gas temperature sensors 17 and exhaust gas pressure sensor for the No. 1 filter 5a among exhaust gas temperature sensors 17 and exhaust gas pressure sensors 18 provided at the inlet and outlet sides of the No. 1 and No. 2 filters..." (emphasis added). The examiner finds that the claimed "comparison" reads on this, along with other portions, of Kumagai.

On page 4, Applicant also argues that Kumagai does not teach preheating the filter with the exhaust gas based on the comparison result.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., preheating the filter with the exhaust gas based on the comparison result) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. MERKLING whose telephone number is (571)272-9813. The examiner can normally be reached on M-F 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. J. M./
Examiner, Art Unit 1795